

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions,
and listings, of claims in the application:

LISTING OF CLAIMS:

1-18. (canceled)

19. (currently amended) An infusion system comprising
a catheter device (2) for transcutaneous or subcutaneous
administration of substances to a patient, comprising:

an outer catheter (4) provided with one outer catheter
lumen (6) with a distal outer catheter outflow opening (8) and an
inner catheter (10) provided with at least one inner catheter
lumen (12) with at least one distal inner catheter outflow
opening (14), said inner catheter is adapted to be detachably
arranged in said outer catheter lumen, said inner catheter
outflow opening is located proximally said outer catheter outflow
opening when the catheter device is adapted to be used for
administration of liquid substances to a patient,

wherein the infusion system further comprises an
external pump device (16) including a pumping means (18),
reservoir means (20) and a ~~control means~~ controller (22), and
that said ~~control means~~ controller controls the pumping means
such that said substance is administered as a pulsed flow
sequence of liquid substance comprising a predetermined number of

liquid pulses, wherein each liquid pulse is a predetermined volume of the substance, and that a liquid pulse of the liquid substance through the inner catheter lumen is followed in time sequence by a liquid pulse of a flushing liquid applied through the outer catheter lumen, in order to make the liquid substance reach a target area of administration, the volume of the liquid pulse of the substance is approximately the same as a volume defined in said outer catheter lumen between the inner catheter outflow opening and the outer catheter outflow opening, and a volume of the flushing liquid is equal to or slightly larger than the volume defined in said outer catheter lumen.

20. (previously presented) The infusion system according to claim 19, wherein said inner catheter is coaxially arranged with regard to said outer catheter.

21. (previously presented) The infusion system according to claim 19, wherein at least one substance, adapted to be administered, is active, and is a hormone, insulin, a peptide, an anti-thrombolytic agent or any other pharmaceutical preparation for therapeutic or diagnostic use.

22. (previously presented) The infusion system according to claim 21, wherein said substance is administered by said inner catheter.

23. (canceled)

24. (currently amended) The infusion system according to claim 19, wherein outer and inner catheters comprise at their respective proximal ends first connector means (24) for connection to ([an]) the external pump device having one or more reservoirs for substances and flushing liquids.

25. (currently amended) The infusion system according to claim 19, wherein said catheter device is provided with a second connector means (26) making it possible to detach said inner catheter and replace it.

26. (previously presented) The infusion system according to claim 25, wherein said second connector means is partly integrated in a Y-connection.

27. (previously presented) The infusion system according to claim 26, wherein said second connector means includes a first fastening means (28) at the proximal end of said inner catheter adapted to co-operate with a second fastening means (30) integrated with an opening in the outer catheter wall such that when said first and second fastening means are attached

to each other the catheter is in a substance administration state.

28. (previously presented) The infusion system according to claim 27, wherein during a replacement procedure the first fastening means is detached from said second fastening means and the inner catheter is withdrawn out through said opening in the outer catheter wall and a new inner catheter may be inserted through said opening.

29. (previously presented) The infusion system according to claim 28, wherein the positions of said first and second fastening means ensure that a predetermined volume is obtained in the distal end of the outer catheter.

30. (canceled)

31. (previously presented) The infusion system according to claim 19, wherein the inner catheter comprises two lumen.

32. (canceled)

33. (previously presented) The infusion system according to claim 19, wherein all surfaces in contact with the

active substance in the catheter device are made of or covered by tetrafluoro polyethylene.

34-37. (canceled)

38. (new) The infusion system according to claim 19, wherein said controller is programmed to perform a flushing sequence.

39. (new) The infusion system according to claim 38, wherein said controller is programmed to perform the flushing sequence after each active substance pulse volume.

40. (new) The infusion system according to claim 39, wherein the flushing sequence effectively washes out the active substance.